

Mo-99 Supply Chain and Diagnostic Imaging

Mo-99 Topical Meeting

Chicago, IL.

September, 2019



Overview UPPI LLC.

- UPPI is an alliance of small business and university owned radiopharmacies.
- Formed in 1998, it has 73 low energy and 11 high energy radiopharmacies.
- UPPI represents approximately 22% of unit doses dispensed every day in the U.S.

United Pharmacy Partners



77 Locations

11 Cyclotrons

Current Mo99 Supply Chain Issue Effect on UPPI

- UPPI members remain impacted by Mo99 supply chain issues especially with short or no advance notice of supply disruption.
- Cut back in Mo99 generator sizes due to less available activities results in schedule changes at the nuclear pharmacy and the diagnostic imaging center.
- Patient and doctor schedules are effected and loss of studies occurs –Tc99m cardiac, in particular.
- There remains little action that can be taken at the nuclear pharmacy level to maintain Mo99 supply resilience.

Impact of Disruptions in the Tc-99m Supply Chain on Cardiac Testing

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FRANKEL CARDIOVASCULAR
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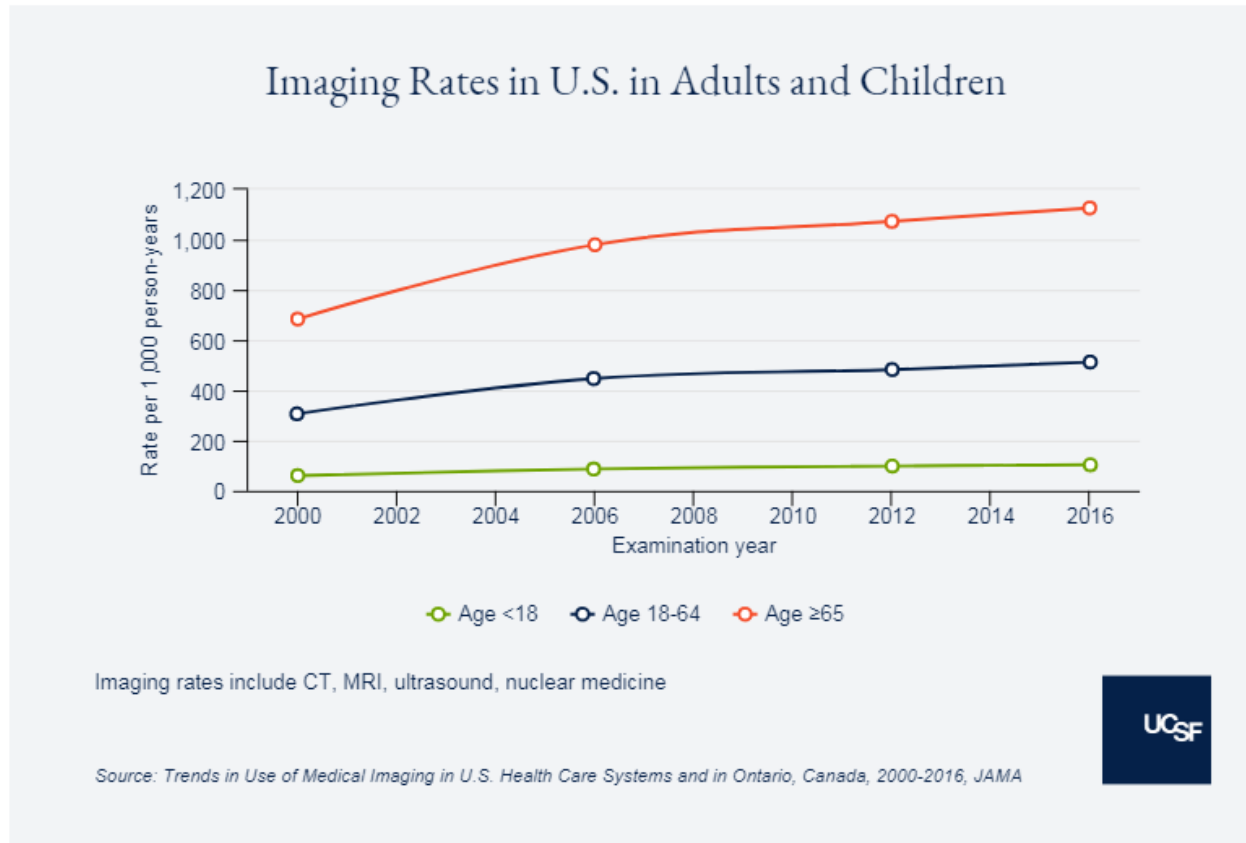
Presented in 2016 on the topic of loss of imaging studies to other diagnostic and treatment alternatives

Medical Imaging Rates Continue to Rise Despite Push to Reduce Their Use

Potential Harms Need to be Considered before Scanning, Researchers Conclude

By [Elizabeth Fernandez](#)

Published September 3, 2019



Medical Imaging Rates Continue to Rise –Except Nuclear Imaging

- Study reviewed medical imaging from 2000 to 2016 with data from seven (7) healthcare systems and Canada.
- 135 million imaging exams included in the study.
- Conclusions:
 - Utilization CT, MRI and Ultrasound increased annually.
 - Growth increased 3% annually over the past five (5) years in the structural imaging modalities.
 - Nuclear medicine exams decreased across all age groups between 2000 and 2016.

Medical Imaging Decline in Nuclear Medicine

- What happened between 2011 and 2016 in nuclear medicine which declined while other modalities grew 3% annually?
 - 2011: Mo99 supply emerges from the shortage of NRU and HFR being off-line during 2009 and 2010.
 - Reimbursement structure changes
 - Fee-for-service changes to outcome driven reimbursement.
 - Decrease in number of imaging centers
 - Free standing nuclear cardiology centers acquired by hospitals.
 - Price increases for certain Tc99m radiopharmaceuticals
 - leads department decisions to use alternative studies.

What's in Store for the Future?

- Lack of a resilient Mo99 supply chain and continued disruptions will put pressure on the number of nuclear imaging studies.
- Improvements in structural imaging can replace some Tc99m studies over time.
- Other nuclear imaging products such as Ga68 PSMA will replace Tc99m bone imaging in the prostate cancer patient.

Mo99 Supply Chain Issue Effect on the Nuclear Pharmacy

Average number of scans per month by modality

	Bone scintigraphy	Decrease*	PSMA-PET/CT
Before PSMA-PET/CT	21.5		
Six months later	12	45.7%	61
Final six months of study period	1	95.3%	53

*Decrease in bone scintigraphy scans from the start of the study.

Five-year trends of bone scan and prostate-specific membrane antigen positron emission tomography utilization in prostate cancer: A retrospective review in a private centre

Crishan Haran , Rhiannon McBean, Rex Parsons , David Wong

First published: 11 April 2019 <https://doi.org/10.1111/1754-9485.12885>

CMS Update: UPPI Activities

- Continuation of the non-HEU Tc99m reimbursement Q9969
 - Allowed in the 2020 OPPI proposed rules
 - CMS did not seek comment on continuing the \$10 –carried forward from the previous year.
 - UPPI response seeks an increase to the reimbursement
 - \$10.00 added on reimbursement does not adequately cover the costs to acquire non-HEU Tc99m doses.

Conclusions

- Pinch points remain effecting the supply of Mo99 that keeps the market supply beneath current demand.
- Supply disruption causes concern for other reactor produced products: I-131.
- Without an adequate Mo99 supply
 - a slow ‘decay’ in nuclear medicine (Tc99m) studies will continue when physicians do not receive the doses ordered and have to send patients to other modalities or follow other courses of treatment.

Thank You

